THE thirteenth yearly Report of the Forest Meteorological Stations of the German Empire, for the year 1887, published by Dr. A. Müttrich, contains monthly and yearly results for sixteen stations. The temperature and humidity are observed in the open country, in the forests, and in the crowns of the trees. The Report contains, besides, other data of interest, such as evaporation and rainfall, and the dates of first and last frosts.

IN a lecture delivered at Trevandrum by Lieut. Harold Ferguson, and reproduced in the *Madras Mail*, on "Some Popular Errors about Snakes," poisonous snakes are divided into three classes: (1) sea-snakes; (2) viperine snakes; and (3) poisonous colubrine snakes. All members of the first class are poisonous. The second class have flat triangular heads, and may be subdivided into pit vipers and true vipers. The true vipers are recognizable by having scales and not shields on the head, and the pit vipers by a deep depression between the eye and nostril. It is not easy to distinguish the third class at first sight from the harmless snakes, but it is an unfailing sign that the latter are covered on the head with large flat scales, which are absent from the head of poisonous colubrine snakes. With regard to Southern India, the poisonous snakes are not numerous. The largest is the dreaded hamadryad (*Ophiophagus elaps*), which is very rare. Other poisonous snakes found in that region are the cobra, the bungarus or krait, the callophis (four species), two species of *Trimeresurus*, *Daboia elegans*, and *Echis carinata*. In all there are about twelve species of poisonous snakes, five of which inhabit the low country—namely, the cobra, the two species of bungarus, the daboia, and the echis; the others are met with only in the hills.

THE British Vice-Consul at Candia, in Valencia, in a recent report on the agriculture of his district, refers to the insect pests of that province. He says that almost all men and boys there are fond of shooting, and they ruthlessly slaughter the small insectivorous birds. The result is, of course, disastrous to the farmers. The apple-trees in the district have been almost all destroyed by a worm called locally "*bañarriquer*," which eats its way into the trunks of the trees, and then spins a thick cobweb over the branches. The eggs, which number from thirty to fifty in each nest, are easily found; but this is rarely, if ever, done. Strange to say, the worm confines its attention to apple-trees; other fruit-trees flourish there. At Lucerne, in the same district, two species of insect pests are found, both caterpillars —*oruga verde* and *gusaro negro*. The latter is difficult to deal with, as it burrows under the roots of plants, but the former is easily swept off the leaves by a net. The pea crop is attacked by the *cadell*, a worm, and the *blanqueta*, an aphis. To complete a list of the ills from which agriculture suffers in that region, mildew has this year attacked the vine.

THE *Journal de la Chambre de Commerce de Constantinople* states that a method of solidifying petroleum has just been discovered. A small quantity of soap is added, and the mixture is heated. When the mixture is allowed to cool, the product can be cut into small cubes like those of compressed charcoal. Thus petroleum can be used as a combustible, it being now easy to transport and manipulate it.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀) from India, presented by Miss D. Hughes; a Vervet Monkey (*Cercopithecus lalandii* ♂) from West Africa, presented by Miss Helena Blow; a Common Genet (*Genetta vulgaris*) from Andalusia, presented by Lord Lilford, F.Z.S.; a —— Fox (*Canis* ——) from India, presented by Colonel Sir Oliver B. C. St. John, K.C.S.I., F.Z.S.; an Axis Deer (*Cervus axis* ♀) from India, presented by Captain W. Miller; two Hobbies (*Falco subbuteo*) from France, presented by M. P. A. Pichot; a Peregrine Falcon (*Falco peregrinus*), captured at sea, off the coast of Florida, presented by Captain J. Smith; a Knot (*Tringa canutus*), British, presented by Mr. C. Whymper, F.Z.S.; a Pallas's Sand-Grouse (*Syrrhaptes paradoxus*) from Fifeshire, N.B., presented by Mr. John Duncan; an Egyptian Vulture (*Neophron percnopterus*) from North Africa, presented by Captain A. Kent; a Polar Bear (*Ursus maritimus*) from the Arctic Regions, a Ruffed Lemur (*Lemur varius*) from Madagascar, a Yak (*Poëphagus grunniens* ♀) from Tibet, deposited; a Blue Jay (*Cyanocitta cristata*) from North America, purchased; a Crested Pigeon (*Ocyphaps lophotes*), a Bolle's Pigeon (*Columba bollii*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

OBSERVATION OF FAINT MINIMA OF VARIABLES.—Mr. S. C. Chandler has followed his Catalogue of Variable Stars by another much-needed piece of work. Pointing out how deplorably deficient is our knowledge of the light-changes of such variables as become too faint for ordinary telescopes to follow them, he strongly urges (*Astr. Journal*, No. 183) upon the possessors of the great modern refractors that they could not better employ their high optical powers than in this neglected field. And in order to afford the greatest possible inducement for them to undertake such a research, or at all events to remove as many hindrances out of their way as possible, he has supplied the data necessary for identification for some sixty-nine or seventy stars, the minimum for which is fainter than the 12th magnitude, together with a hypothetical ephemeris for the time of minimum for those stars which are likely to pass through that phase during the next fourteen months. The time of minimum has been assumed to precede that of maximum by 0·45 of the period. Mr. Chandler believes that he has discovered a curious relation between the form of the light-curve and the period. He does not, however, give this relation, but expects that the minima will fall earlier than predicted for stars with periods of from five to ten months or longer than thirteen months, but that in stars with periods from ten to thirteen months the minima will probably fall a little late. Argelander's method of observation is recommended.

OXYGEN LINES IN THE SOLAR SPECTRUM.—M. Janssen has made a very toilsome, not to say somewhat dangerous, expedition in order to determine whether the groups of lines seen in the solar spectrum, and which he had shown to belong to oxygen, were wholly due to the influence of our atmosphere, or partly due to the absorption of oxygen in that of the sun. He therefore resolved to ascend Mont Blanc at a late period in the season, when the cold would be sufficiently intense to secure the absence of any appreciable amount of water vapour from the atmosphere. The station chosen was that of Les Grands Mulets, on account of the cabin there, which would afford shelter to the observers during the period that it might be necessary to continue the observations. The ascent was made on October 13, and the following day was devoted to the adjustment of the instruments. October 15 and 16 were most fortunately very fine days, and the observations were made under the most favourable conditions. The result was to show that both the bands and lines of oxygen, as identified by M. Janssen in the solar spectrum by his previous experiments, are due entirely to the earth's atmosphere. The system of bands—those in the red, in the yellow, and the blue, the intensity of which varied with the square of the density of the absorbing oxygen—was altogether wanting, and the groups of dark lines, viz. A, B, and α, which M. Janssen had found, in the experiments above referred to, to vary as the simple density, were so much enfeebled as to leave little doubt but that they, too, would disappear could we wholly eliminate the influence of our atmosphere. Of course this result does not prove the absence of oxygen from the sun, but merely that it does not show its presence by the same characteristic bands and groups of lines as it does in the case of our own atmosphere.

NEW MINOR PLANETS.—Herr Palisa has discovered three new minor planets, No. 279 on October 25, No. 280 on October 29, and No. 281 on October 31. Of these No. 279 may possibly prove to be Medusa, No. 149; and No. 280 was at first thought to be Oppavia, No. 255, but is more probably a new planet.

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COMETS FAYE AND BARNARD.—The following ephemerides for these objects for Berlin midnight are in continuation of those given in NATURE, vol. xxxviii. p. 626:—

1888.	Comet 1888 *d* (Faye). R.A. h. m. s.	Decl. ° ′	Comet 1888 *e* (Barnard). R.A. h. m. s.	Decl. ° ′
Nov. 11	8 6 9	5 49·9 N.	4 30 32	0 24·4 S.
13	8 7 39	5 27·6	4 17 59	1 5·4
15	8 8 59	5 5·6	4 4 55	1 46·7
17	8 10 11	4 44·1	3 51 26	2 27·5
19	8 11 15	4 22·9	3 37 39	3 7·4
21	8 12 9	4 2·4	3 23 43	3 45·7
23	8 12 56	3 42·4	3 9 45	4 21·9
25	8 13 34	3 23·1 N.	2 55 56	4 55·3 S.

DISCOVERY OF A NEW COMET.—Mr. E. E. Barnard, Lick Observatory, Mount Hamilton, discovered a new comet on October 30 (local time). Place at October 31·0399 G.M.T., R.A. 9h. 43m. 22·2s.; Decl. 15° 18′ 52″ S. Daily motion, R.A. + 1m. 32s.; Decl. 9′ *n*. Physical appearance: slightly elongated; 1′ in diameter; 11th magnitude, or fainter; strong central condensation.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 NOVEMBER 11–17.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on November 11

Sun rises, 7h. 14m.; souths, 11h. 44m. 13·2s.; sets, 16h. 14m.: right asc. on meridian, 15h. 8·4m.; decl. 17° 38′ S. Sidereal Time at Sunset, 19h. 39m.

Moon (at First Quarter November 10, 16h.) rises, 14h. 7m.; souths 19h. 0m.; sets, 0h. 2m.*: right asc. on meridian, 22h. 25·5m.; decl. 13° 20′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m.	° ′
Mercury..	5 27	10 39	15 51	14 2·6	10 10 S.
Venus.....	10 13	13 57	17 41	17 21·7	24 35 S.
Mars......	11 50	15 38	19 26	19 3·0	24 11 S.
Jupiter....	9 10	13 14	17 18	16 39·0	21 41 S.
Saturn....	22 41*	6 7	13 33	9 30·8	15 41 N.
Uranus...	4 22	9 49	15 16	13 13·2	7 6 S.
Neptune..	16 51*	0 36	8 21	3 57·9	18 44 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

Nov.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. ° °
12	ψ^3 Aquarii	5	17 9	18 24	103 267
16	ξ^2 Ceti	4	21 11	near approach	10 —

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·4	81 16 N.	Nov. 15,	1 8	*m*
Algol	3 0·9	40 31 N.	,, 14,	4 33	*m*
			,, 17,	1 22	*m*
λ Tauri	3 54·5	12 10 N.	,, 11,	1 15	*m*
			,, 15,	0 7	*m*
T Monocerotis	6 19·2	7 9 N.	,, 14,	3 0	*M*
R Canis Majoris	7 14·5	16 12 N.	,, 15,	22 34	*m*
			,, 17,	1 49	*m*
R Leonis	9 41·5	11 57 N.	,, 16,		*m*
R Virginis	12 32·8	7 36 N.	,, 15,		*m*
U Virginis	12 45·4	6 7 N.	,, 16,		*m*
β Lyræ	18 46·0	33 14 N.	,, 14,	18 0	*M*
η Aquilæ	19 46·8	0 43 N.	,, 17,	18 0	*M*
S Sagittæ	19 50·9	16 20 N.	,, 11,	19 0	*M*
R Sagittæ	20 9·0	16 23 N.	,, 15,		*m*
U Capricorni	20 41·9	15 12 S.	,, 15,		*M*
Y Cygni	20 47·6	34 14 N.	,, 13,	3 0	*m*
			,, 16,	3 0	*m*
δ Cephei	22 25·0	57 51 N.	,, 12,	19 0	*m*

M signifies maximum; *m* minimum.

Nov.	h.	
13	13	Venus at greatest distance from the Sun.
17	4	Mercury at greatest elongation from the Sun 19° east.

Meteor-Showers.

The principal periodic shower of the week is that of the *Leonids*, max. November 14, radiant R.A. 149°, Decl. 22° N.; but no great display is to be expected this year or for several years to come. Other showers are as follows:—

	R.A.	Decl.	
From Lynx	125°	40° N.	Swift; streaks.
Near ξ Ursæ Majoris	165	30 N.	,, ,,

GEOGRAPHICAL NOTES.

THE great Constantine Medal was awarded this year by the Russian Geographical Society to Prof. Romanovsky for his geological work in Russian Turkestan. For more than five years the learned Professor explored various parts of Turkestan, and thus laid the first foundations for the geological knowledge of this region. His first work, "Materials for the Geology of Turkestan," was published in 1876, and it contained the description of eighty-eight species of fossil animals (of which thirty-four were new species) and fourteen species of plants belonging to the Carboniferous, Triassic, Jurassic, and Chalk deposits of Turkestan; the Silurian and Devonian deposits of the region being so greatly metamorphosed as to have most of their fossils destroyed. This first work was soon followed by papers contributed to the *Verhandlungen* of the St. Petersburg Mineralogical Society, in which papers Prof. Romanovsky described the fossils of the Ferghana deposits (Upper Chalk, characterized by their richness in *Ostreæ*, some of which belong to new genera), and the Sarvadan brown-coals, which contain the new lizard *Brontozoum tianschanicum*, and are of the same age as the Connecticut Trias Sandstone. The second part of the "Materials for the Geology of Turkestan," published by Prof. Romanovsky, contains the description of all the palæontological collections gathered in Turkestan by MM. Mushketoff, Syevertsoff, Barbot-de-Marny, and Okladnykh; and no less than 144 species of fossils (of which forty-nine are new) have been described in this second instalment of the "Materials." It was precisely the palæontological work of Prof. Romanovsky which enabled M. Mushketoff to arrive at the remarkable general conclusions as to the great features of the geology of Turkestan, which are embodied in his capital work, "Turkestan," and which rendered it possible for both geologists to draw up the geological map which illustrates it.

AT the same sitting the great medal of Count Lütke was awarded to Th. P. Köppen for his work in botanical and zoological geography. His work on the distribution of Conifers in Russia, published in 1885, is an exhaustive inquiry into the subject, and his numerous monographs on the distribution of insects in Russia, as well as of the squirrel and the stag, as also his monographs about the Siberian cedar, the Scotch fir, the larch, the *Juniperus*, and so on, are most valuable contributions to the botanical and zoological geography of Russia; while his last work on the birth-places of the Indo-Europeans and the Finns and Ugrians (published in the Russian Journal of the Ministry of Public Education for 1886), although made in a new direction, is an important contribution to this much debated subject. Large gold medals were awarded to Prof. M. M. Kovalevsky for his "Modern Customs and Old Law: the Customary Law of the Ossetes"; to Prof. Vs. Th. Miller for his "Ossetian Studies"; and to M. Pirogoff for a statistical work about Kostroma. A small gold medal was awarded to L. P. Zagursky, to whom the ethnography of the Caucasus is indebted for so many valuable works, and all ethnographers will be grateful for his endeavours to save from oblivion and to continue the works of Baron Uslar, which undoubtedly are the most serious researches ever made into the study of Caucasian languages. Gold medals were also awarded to A. S. Vilkitzky for his determinations of the length of pendulum on Novaya Zemlya and at Archangelsk; to N. Y. Dinnik for explorations in Northern Caucasia; and to D. Bulgakovsky for a manuscript work on the inhabitants of the Pinsk marshy tracts. Nineteen silver medals were awarded for various geographical works of less importance.

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